

I claim:

1. A system for applying a chemical to a tissue sample, comprising:

5 a cassette;

a slide device for holding the tissue sample, the slide device being adapted to be housed within the cassette during use and comprising a specimen slide and a cover plate, the cover plate being attachable to the specimen slide such that a head space exists  
10 therebetween, the slide device further comprising an injection port communicating with the head space; and

15 a film adapted to be located within the cassette for delivering a chemical to the injection port, the film comprising a container for holding the chemical.

2. The system as recited in claim 1, wherein the cassette further comprises an open end for receiving the slide device.

20 3. The system as recited in claim 1, wherein the slide device comprises a spacer for defining the head space, the spacer being disposed between the specimen slide and the cover plate, the spacer being located around outer edges of the specimen slide and the cover plate.

25 4. The system as recited in claim 1, wherein the cassette comprises (1) a cavity being adapted to house the cover plate and (2) a raised protrusion on a side of the cavity, and further comprising a spacer being disposed between the raised protrusion and the specimen slide such that the specimen slide is a pre-determined distance from the cover plate, the cover plate being within the cavity and being unconnected to the specimen slide.

5. The system as recited in claim 1, wherein the cassette further comprises a cavity, the cavity being adapted to house the slide device.
6. The system as recited in claim 1, wherein the cassette further comprises a cavity  
5 and a removable cap adapted to cover at least a portion of the cavity.
7. The system as recited in claim 1, wherein the specimen slide and the cover plate are adapted to be snapped together.
- 10 8. The system as recited in claim 1, further comprising a slide holder for attaching the specimen slide to the cover plate.
9. The system as recited in claim 1, wherein the head space is between about 0.0005 inch and about 0.004 inch.  
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10. The system as recited in claim 1, wherein the head space is between about 0.0015 inch and about 0.0025 inch.
- 20 11. The system as recited in claim 1, wherein the slide device further comprises a first end, a second end, and a relief port, the first end being opposite to the second end, and wherein the injection port communicates with the head space at the first end, and wherein the relief port communicates with the head space at the second end.
12. The system as recited in claim 1, wherein the slide device further comprises a first  
25 end, a second end, and a relief port, and wherein the injection port communicates with the head space at the first end, and wherein the injection port comprises a conduit, the conduit communicating with the head space to allow the chemical to pass through the conduit into the head space.

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13. The system as recited in claim 1, wherein the film comprises a plurality of holders for holding chemically filled containers.
14. The system as recited in claim 1, wherein the container comprises a cavity for holding the chemical, a plurality of protrusions extending from an inner surface of the cavity, and a cap for sealing the cavity, the cap comprising a plurality of complementary protrusions adapted to mate with the protrusions of the cavity.
15. The system as recited in claim 1, wherein the container comprises a cavity for holding the chemical and a removable cap for sealing the cavity, the cap comprising: (a) a slit terminating in a wall, the slit being adapted to deliver the chemical from the cavity to the injection port; and (b) a plurality of protrusions extending from an outer surface of the cap.
16. The system as recited in claim 1, wherein the container comprises (a) a cavity for holding the chemical; (b) a plurality of protrusions extending from an inner surface of the cavity; (c) and a cap shaped to mate with a portion of the cavity for sealing the cavity, the cap comprising a plurality of complementary protrusions adapted to be inserted between the protrusions of the cavity for locking the cap within the cavity.
17. The system as recited in claim 1, wherein the film extends along an edge of the cassette and forms a substantially horseshoe-shaped loop at an interior portion of the cassette.
18. The system as recited in claim 1, wherein the container comprises a wall to separate two or more chemicals within the container.
19. The system as recited in claim 1, further comprising a guide roller located within the cassette, the guide roller engaging the film and being adapted to rotate to move the film during use.

20. The system as recited in claim 1, further comprising a waste tank containing absorbent material for collecting chemical that exists the slide device, the waste tank being connected to an end of the slide device.